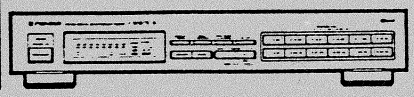
SEU30955

PIONEER
The Art of Entertainment

Service Manual



ORDER NO.
ARP2576

FM/AM DIGITAL SYNTHESIZER TUNER

F-301RDS

067.495.2

F-301 RDS HAS THE FOLLOWING :

Type	Power Requirement	Remarks
HEWZI	AC 220 – 230 V, 240 V (switchable) *	
HE	AC 220 – 230 V, 240 V (switchable) *	
HB	AC 220 – 230 V, 240 V (switchable) *	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to F-301 RDS/HEWZI, HE and HB.**
- **For HB and HE types, refer to page 23.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

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FS JULY 1992 Printed in Japan

1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Description	Parts No.
	1	FRONT PANEL	AMB1997
⚠	2	FU1 (T400MA, 250V)	AEK−504
⚠	3	AC POWER CORD	ADG1049
NSP	4	CHASSIS	ANA1118
	5	INSULATOR ASSY	AMR2140
NSP	6	NYLON BINDER	AEC−093
⚠	7	STRAIN RELIEF	AEC−882
NSP	8	BARRIER	AEC1416
NSP	9	PCB MOULD	AMR1525
	10	SCREW	ABA−298
	11	SCREW	ABA1018
	12	SCREW (STEEL)	ABA1047
	13	SCREW	BBZ26P100FMC
	14	FL FILTER	AAK1927
	15	PANEL	AAK2338
	16	NAME PLATE (METAL)	AAM1029
	17	STATION BUTTON (ABS)	AAD1751
	18	STATION BUTTON (ABS)	AAD1752
	19	POWER BUTTON (ABS)	AAD1757
	20	CONTROL BUTTON (ABS)	AAD2280
	21	BONNET(FE)	ANE1236
	22	OPE. INSTRUCTIONS (German/Italian)	ARC1343
	23	PLUG CORD	ADE−081
	24	CORD WITH PLUG	ADE−085
	25	FM ANTENNA	ADH1002
	26	L LOOP ANTENNA	ATB1006
	27	STYROL PROTECTOR	AHA1333
	28	PACKING CASE	AHD2262
	29	PACKING SHEET	AHC1017
◉	30	TUNER ASSEMBLY	AWZ4124
◉	31	POWER ASSEMBLY	AWZ4126
	32	CONTROL ASSEMBLY	AWP1044

2. SCHEMATIC AND PCB CONNECTION DIAGRAMS

2.1 TUNER AND POWER ASSY

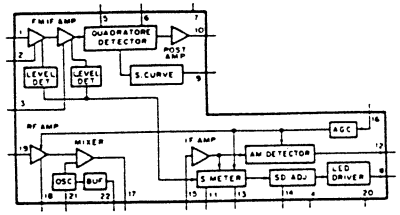
Note: (Type 3)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   mV : Signal voltage at FM 1kHz, 100% MOD.
   : DC voltage (V) at no input signal unless otherwise noted. Value in ( ) is DC voltage at rated power.
   ⇦ mA or ⇦ mA : DC current at no input signal unless otherwise noted.
7. **OTHERS:**
   - ➡ : Signal route.
   - ⊘ : Adjusting point.
   - ▼ (Red) : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SWITCHES** (Underline indicates switch position):

TUNER ASSY

S 401 :	POWER
S 402 :	4/16/28
S 403 :	10/22/34
S 404 :	3/15/27
S 405 :	9/21/33
S 406 :	+(TUNING UP)
S 407 :	RF ATT
S 408 :	1/13/25
S 409 :	7/19/31
S 410 :	MEMORY
S 411 :	DISPLAY MODE
S 412 :	−(TUNING DOWN)
S 413 :	MAX MODE (AUTO/MODE)
S 414 :	2/14/26
S 415 :	8/20/32
S 416 :	BAND
S 417 :	INPUT/SEARCH
S 418 :	5/17/29
S 419 :	11/23/35
S 420 :	6/18/30
S 421 :	12/24/36

IC201 <LA1265S>



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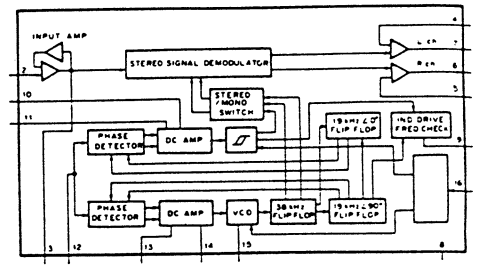
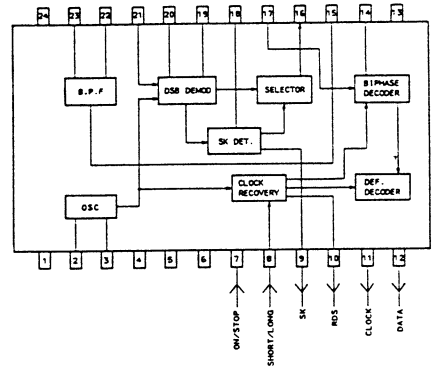


IC501 <PM4002>



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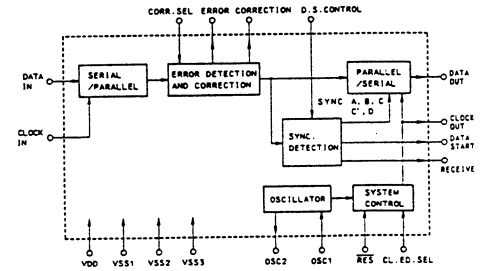
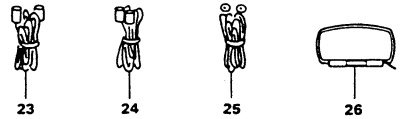
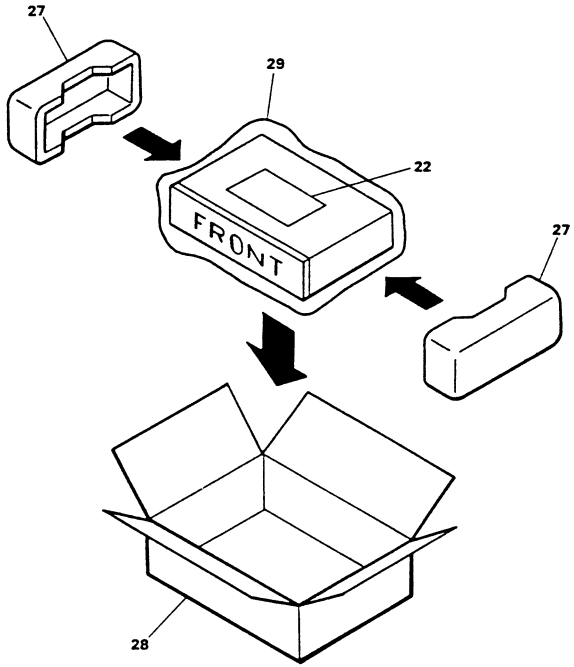
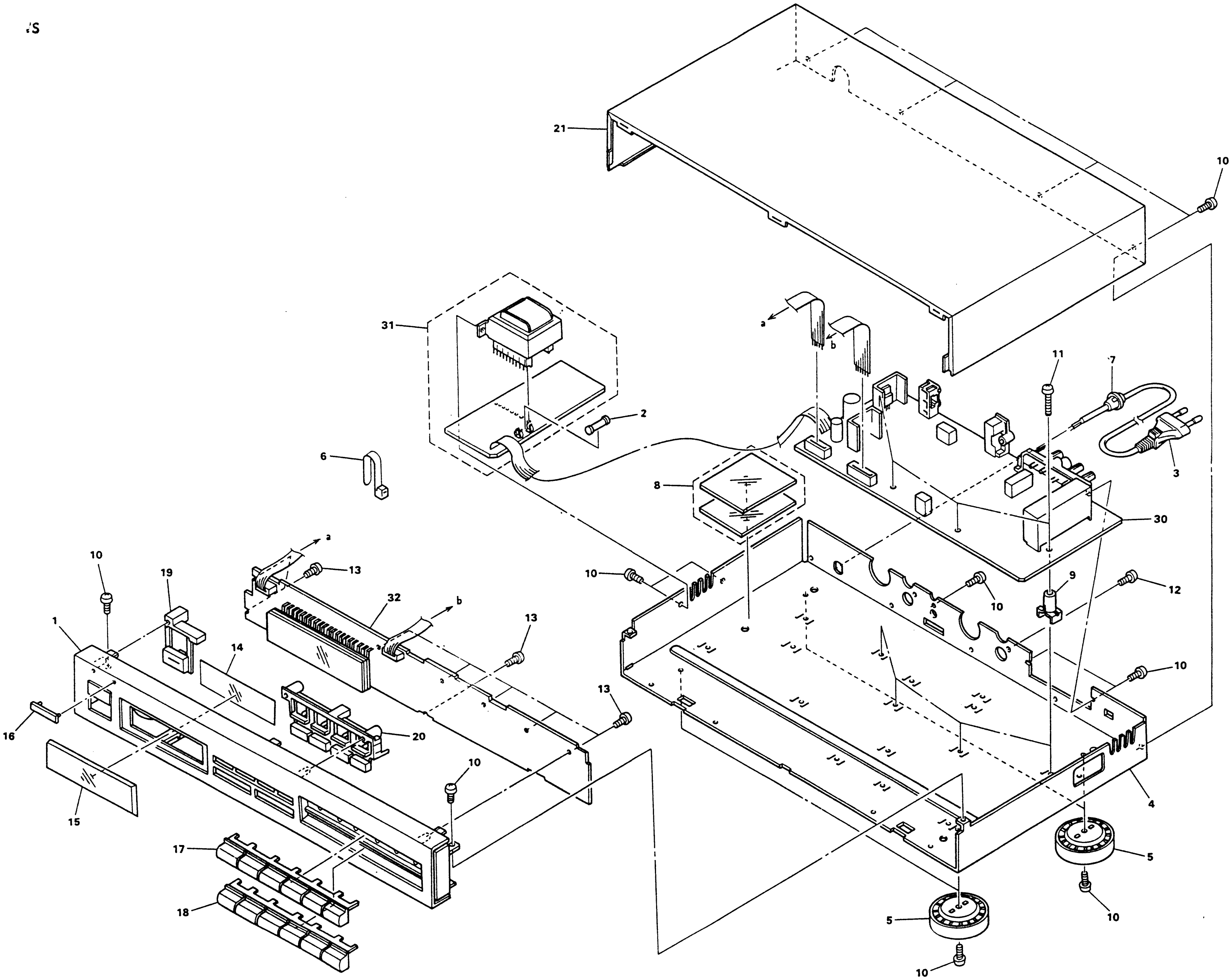


PACKING





EXP ED VS



21
10
31
a
b
11
7
2
6
8
3
30
a
13
32
b
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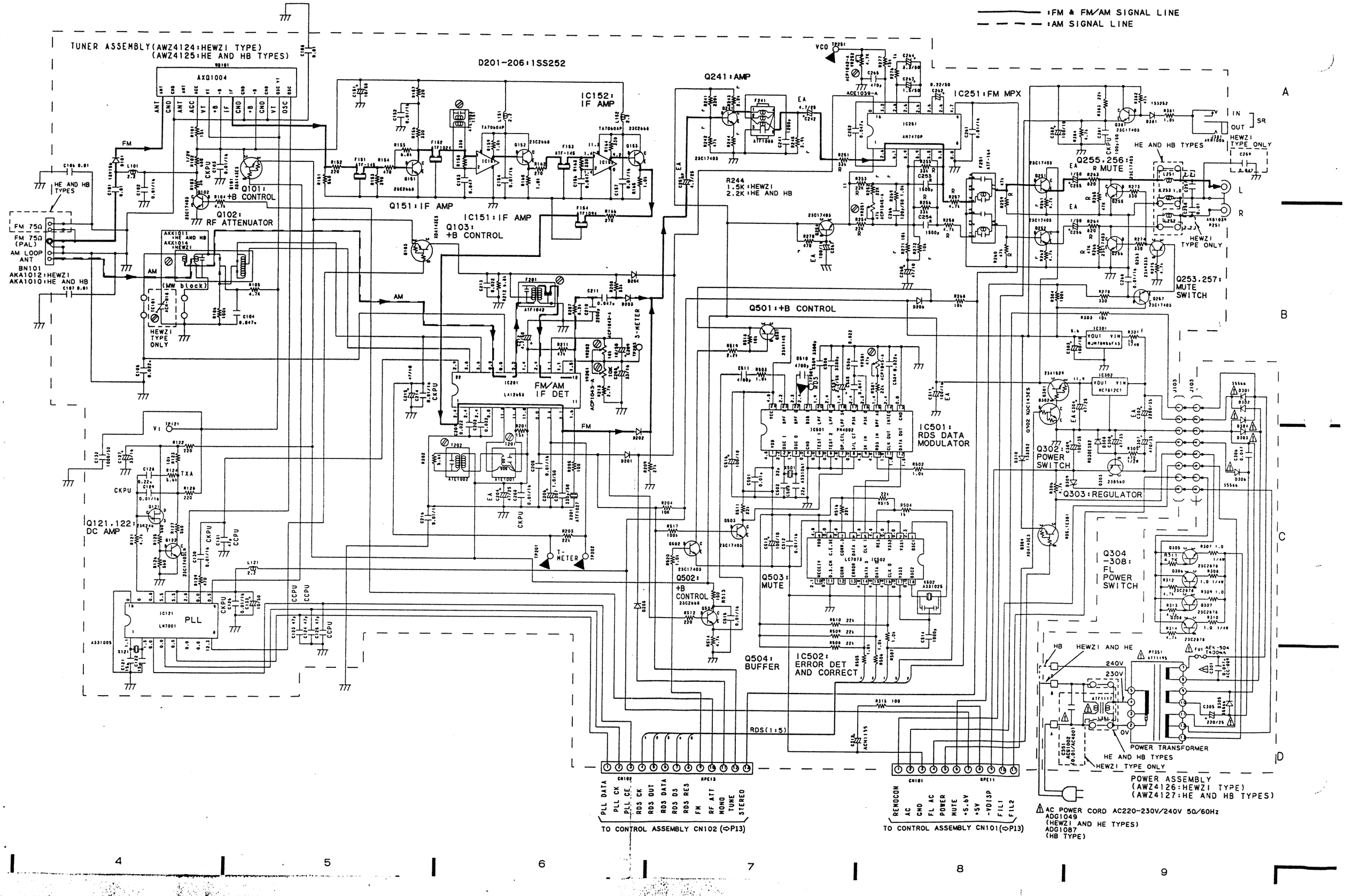

:FM & FM/AM SIGNAL LINE
:AM SIGNAL LINE
TUNER ASSEMBLY(AWZ4124:HEWZI TYPE)
(AWZ4125:HE AND HB TYPES)
D201-206:1SS252
Q241:AMP
IC152:
IF AMP
IC251:FM MPX
Q101:
+B CONTROL
Q102:
RF ATTENUATOR
Q151:IF AMP
IC151:IF AMP
Q103:
+B CONTROL
Q501:+B CONTROL
IC501:
RDS DATA
MODULATOR
Q255.256:
R MUTE
Q253.257:
MUTE
SWITCH
Q302:
POWER
SWITCH
Q303:REGULATOR
Q304
-308:
FL
POWER
SWITCH
Q121.122:
DC AMP
Q502:
+B
CONTROL
Q503:
MUTE
Q504:
BUFFER
IC502:
ERROR DET
AND CORRECT
IC121
PLL
LM7001
IC201
FM/AM
IF DET
R244
1.5K:HEWZI
2.2K:HE AND HB
HE AND HB TYPES
HEWZI TYPE ONLY
FM 75Ω
FM 75Ω
(PAL)
AM LOOP
ANT
BN101
AKA1012:HEWZI
AKA1010:HE AND HB
AXQ1004
AXK1011
:HE AND HB
AXK1014
:HEWZI
(MW block)
CKPU
CCPU
TXA
T-METER
RDS(1:5)
CN102
PLL DATA
PLL CK
PLL CE
RDS CK
RDS OUT
RDS DATA
RDS DS
RDS RES
FM
RF ATT
MONO
TUNE
STEREO
TO CONTROL ASSEMBLY CN102 (⇨P13)
CN101
REMOCON
AC
GND
FL AC
POWER
MUTE
+5.6V
+5V
-VD/3P
FIL1
FIL2
TO CONTROL ASSEMBLY CN101(⇨P13)
POWER TRANSFORMER
HE AND HB TYPES
HEWZI TYPE ONLY
POWER ASSEMBLY
(AWZ4126:HEWZI TYPE)
(AWZ4127:HE AND HB TYPES)
AC POWER CORD AC220-230V/240V 50/60Hz
ADG1049
(HEWZI AND HE TYPES)
ADG1087
(HB TYPE)
HB
HEWZI AND HE
240V
230V
0V

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wirng symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

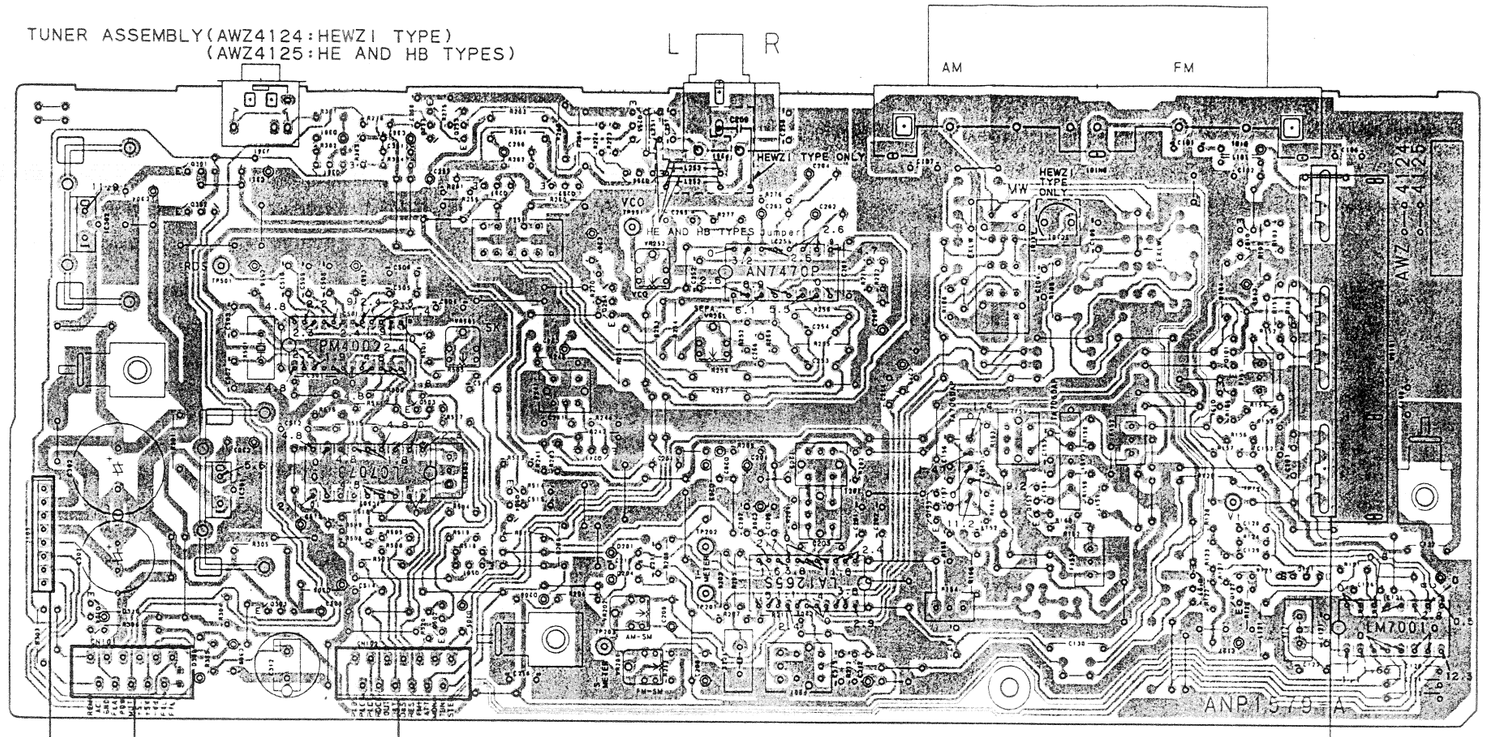
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

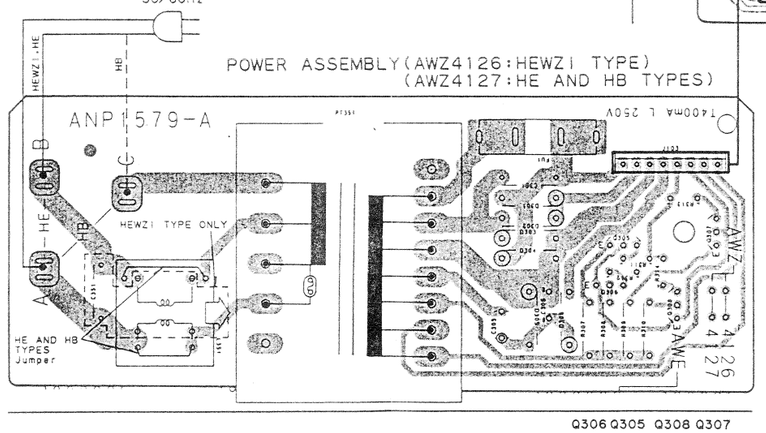
⚠ AC POWER CORD
AC220-230V/240V
50/60Hz

TUNER ASSEMBLY(AWZ4124:HEWZ1 TYPE)
(AWZ4125:HE AND HB TYPES)

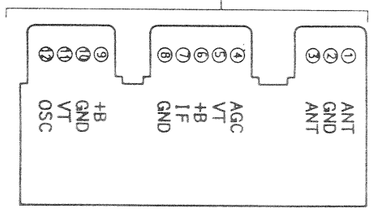
Q257
Q253 Q255
Q301 Q381
Q256
Q251 Q252
IC302 Q302
TC101
IC251 VR252
Q102
Q254 VR251
IC501 VR501
Q101
Q503
Q151
IC152
IC151 Q241
IC502
IC301 Q504
Q153 Q152
IC201 Q501
Q103 Q121
Q303 Q122 VR202
Q304 Q502
IC121
VR201



POWER ASSEMBLY(AWZ4126:HEWZ1 TYPE)
(AWZ4127:HE AND HB TYPES)



Q306 Q305 Q308 Q307



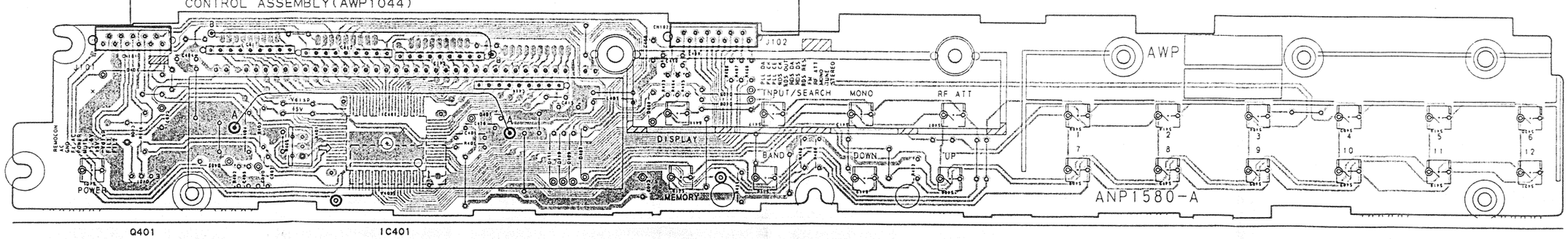
FE MODULE ASSEMBLY
(AXQ1004)

Line Voltage Selection

Line Voltage can be changed as follows :
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection of POWER ASSY primary pins.
4. Stick the line voltage label on the rear panel.

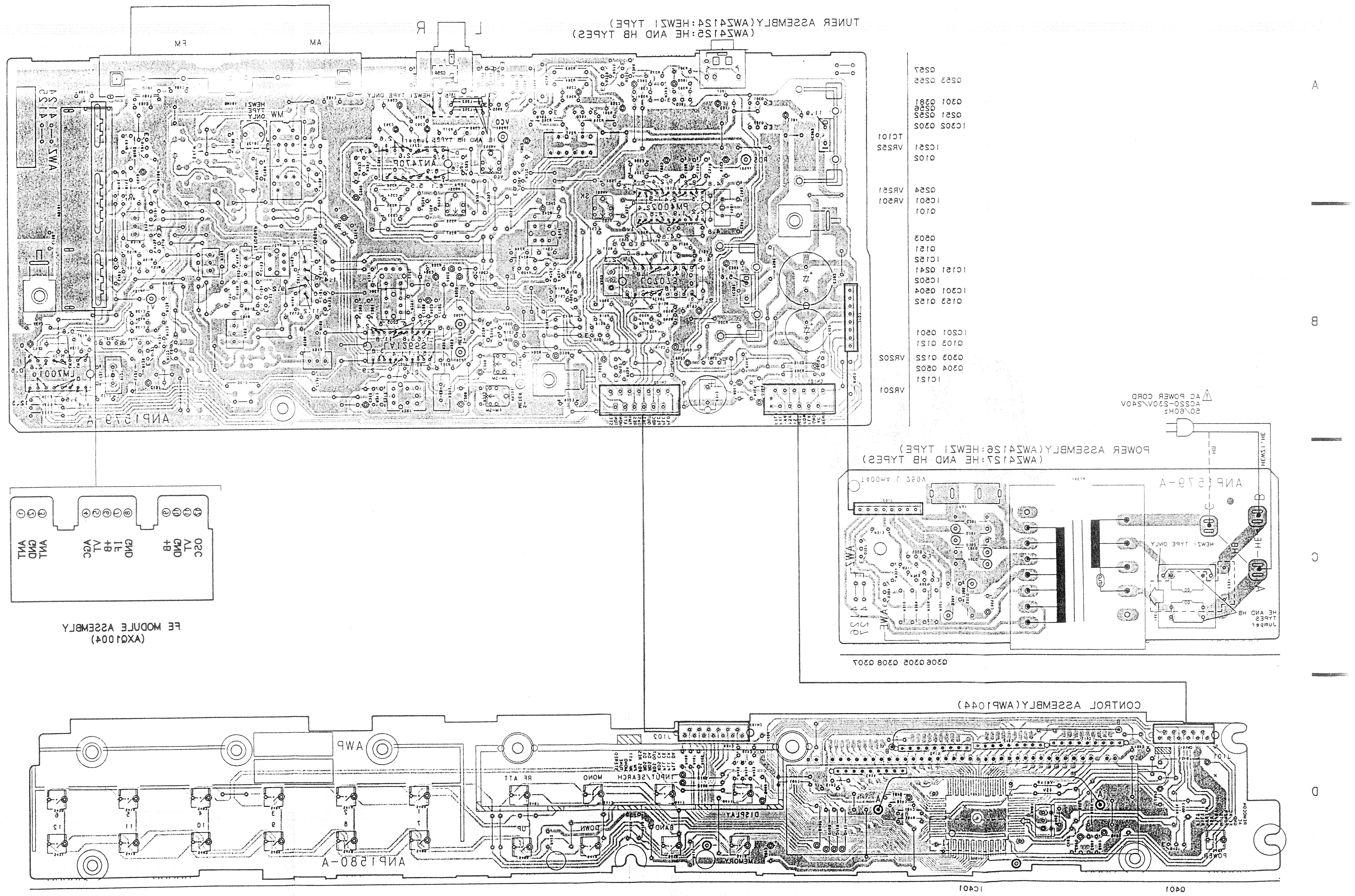
Part No.	Description
AAX-193	220 V label
AAX-192	240 V label

CONTROL ASSEMBLY(AWP1044)

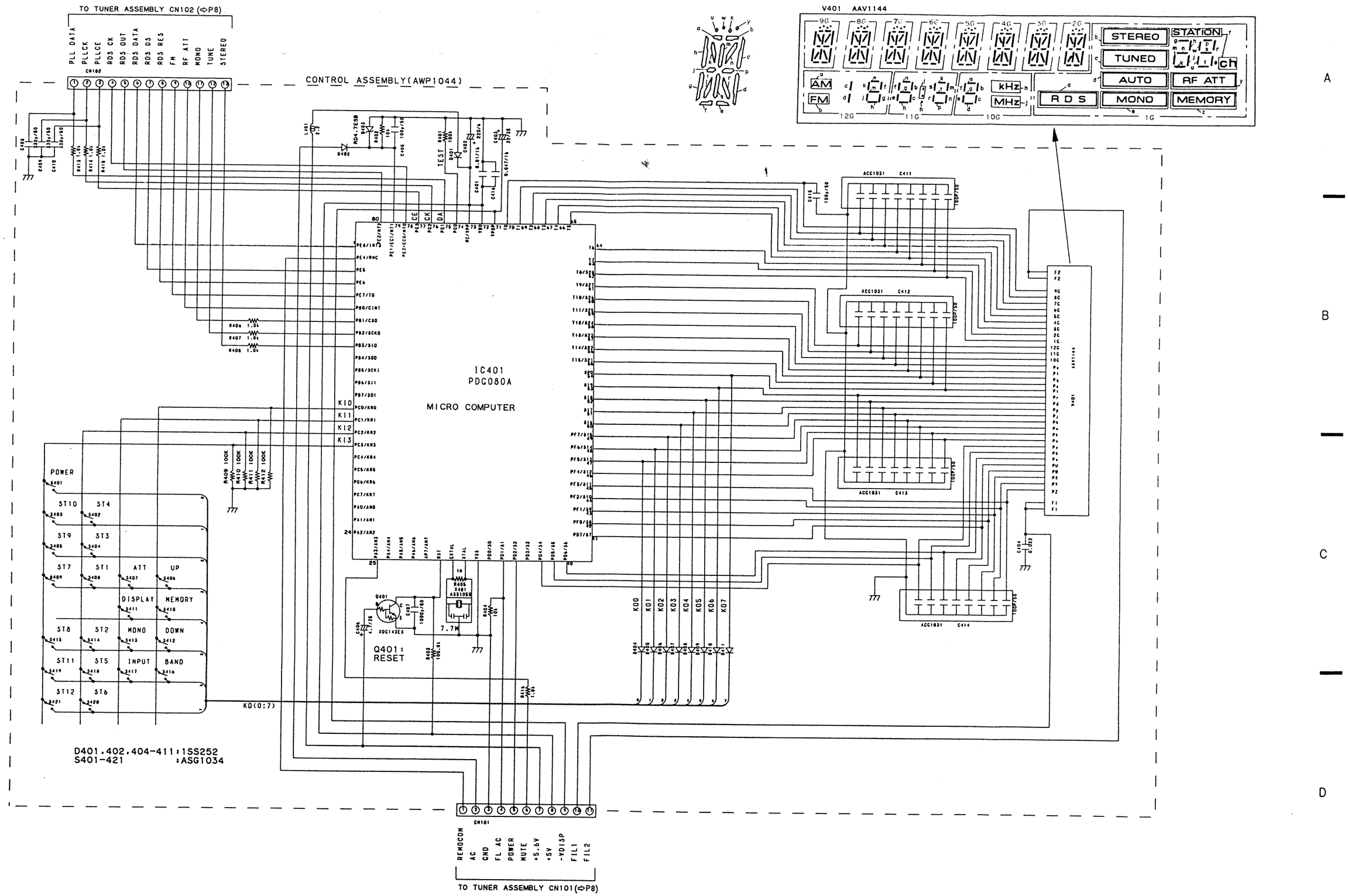


Q401 IC401

This P.C.B. connection diagram is viewed from the foil side.



2.2 CONTROL ASSY



3. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56 × 10¹ → 561	*RD1/8PM[5][6][1]J*
47kΩ → 47 × 10³ → 473	*RD1/4PS[4][7][3]J*
0.5Ω → 0R5	*RN2H[0][R][5]K*
1Ω → 010	*RS1P[0][1][0]K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ→ 562 × 10¹ →5621 ..... *RN1/4PC[5][6][2][1]F*

Mark	No.	Description	Parts No.
LIST OF ASSEMBLIES			
◉		TUNER ASSEMBLY	AWZ4124
◉		POWER ASSEMBLY	AWZ4126
		CONTROL ASSEMBLY	AWP1044
TUNER ASSEMBLY			
SEMICONDUCTORS			
	IC121	PLL IC	LM7001
	IC151,152	AMPLIFIER IC	TA7060AP
	IC201	AM/FM IC	LA1265S
	IC251	MPX IC	AN7470P
	IC301	REGULATOR IC	NJM78M56FAS
	IC302	REGULATOR IC	MC7812CT
	IC501	RDS	PM4002
	IC502	RDS	LC7073
	Q101	TRANSISTOR	XDA143ES
	Q102	TRANSISTOR	2SC1740S
	Q103	TRANSISTOR	XDA143ES
	Q121	N-FET	2SK246
	Q122	TRANSISTOR	2SC1740SLN
	Q151-153	TRANSISTOR	2SC2668
	Q241	TRANSISTOR	2SC1740S
	Q251,252	TRANSISTOR	2SC1740S
	Q253	TRANSISTOR	2SA933S
	Q254-257	TRANSISTOR	2SC1740S
	Q301	TRANSISTOR	2SA1529
	Q302	TRANSISTOR	XDC143ES
	Q303	TRANSISTOR	2SB560
	Q304	TRANSISTOR	XDA143ES
	Q381	TRANSISTOR	2SC1740S
	Q501	TRANSISTOR	2SA1145
	Q502,503	TRANSISTOR	2SC1740S
	Q504	TRANSISTOR	2SC2668
	D101	DIODE	1SV156
	D201-206	DIODE	1SS252
	D308	ZENER DIODE	RD30ESB2
	D309	ZENER DIODE	RD5.1ESB1
	D310	DIODE	1SS252
	D381	DIODE	1SS252
COILS, FILTERS			
	TC101	COIL	ACM-018
	L101	AXIAL INDUCTOR	LAU2R2K
	L121	AXIAL INDUCTOR	LAU2R2K
	L151,152	AXIAL INDUCTOR	LAU2R2K
	L251,252	AXIAL INDUCTOR	LAU2R2K
	L253	AXIAL INDUCTOR	LAU010M
	F151	CERAMIC FILTER	ATF-145
	F152	CERAMIC FILTER	ATF1024
	F153	CERAMIC FILTER	ATF-145
	F154	CERAMIC FILTER	ATF1094
	F201	CERAMIC FILTER	ATF1042
	F241	FILTER	ATF1088
	F251	FILTER	ATF-164
	T151	IF TRANSFORMER	ATE-063
	T201	IF TRANSFORMER	ATE1001
	T202	IF TRANSFORMER	ATE1002
CAPACITORS			
	C101	CERAMIC CAPACITOR	CKDYX103M25
	C102,103	CERAMIC CAPACITOR	CKPUYY103M16
	C104	CERAMIC CAPACITOR	CKDYX473M25
	C105	CERAMIC CAPACITOR	CKDYX223M25
	C106-108	CERAMIC CAPACITOR	CKDYX103M25
	C121,122	CERAMIC CAPACITOR	CCMCH150J50
	C123-125	AXIAL CAPACITOR	CCPUSL470J50
	C126	CERAMIC CAPACITOR	CKPUYY103M16
	C127	ELECT. CAPACITOR	CEAS330M16
	C128	AUDIO FILM CAPACITOR	CFTXA224J50
	C129,130	CERAMIC CAPACITOR	CKPUYY103M16
	C131	AXIAL CAPACITOR	CCPUSL470J50
	C132	CERAMIC CAPACITOR	CKPUYB102K50
	C133	ELECT. CAPACITOR	CEAS100M50
	C151	ELECT. CAPACITOR	CEAS100M50
	C152	CERAMIC CAPACITOR	CKPUYY103M16
	C153	CERAMIC CAPACITOR	CKDYX473M25
	C154	CERAMIC CAPACITOR	CKPUYY103M16
	C156	CERAMIC CAPACITOR	CKDYX473M25
	C157	CERAMIC CAPACITOR	CKPUYY103M16
	C201,202	CERAMIC CAPACITOR	CKDYX223M25
	C203	CERAMIC CAPACITOR	CKPUYY103M16
	C204	ELECT. CAPACITOR	CEEA470M25
	C205	CERAMIC CAPACITOR	CKPUYY103M16
	C206	ELECT. CAPACITOR	CEAS010M50
	C207	CERAMIC CAPACITOR	CKPUYB331K50
	C208	ELECT. CAPACITOR	CEAS330M16
	C209	ELECT. CAPACITOR	CEAS100M50
	C210	CERAMIC CAPACITOR	CKDYB222K50
	C211	CERAMIC CAPACITOR	CKDYX473M25
	C212	ELECT. CAPACITOR	CEAS4R7M50
	C213	CERAMIC CAPACITOR	CKDYX223M25
	C214	CERAMIC CAPACITOR	CKPUYY103M16
	C215	ELECT. CAPACITOR	CEAS470M10
	C216	CERAMIC CAPACITOR	CKPUYY103M16

Mark	No.	Description	Parts No.
	C241	CERAMIC CAPACITOR	CKDYB122K50
	C242	ELECT. CAPACITOR	CEEA4R7M25
	C251	ELECT. CAPACITOR	CEEANP4R7M25
	C252	CERAMIC CAPACITOR	CKDYX473M25
	C253,254	MYLAR FILM CAPACITOR	CQMA152J50
	C255,256	ELECT. CAPACITOR	CEEA010M50
	C257,258	CERAMIC CAPACITOR	CKDYB103K50
	C259	CERAMIC CAPACITOR	CKDYX473M25
	C260	ELECT. CAPACITOR	CEAS470M10
	C261	CERAMIC CAPACITOR	CKPUYY103M16
	C262	ELECT. CAPACITOR	CEASR22M50
	C263	ELECT. CAPACITOR	CEAS1R5M50
	C264	ELECT. CAPACITOR	CEAS3R3M50
	C265	CAPACITOR (470P/50V)	ACE1039
	C266	CERAMIC CAPACITOR	CKPUYB121K50
	C267	ELECT. CAPACITOR	CEEA101M16
	C268	CERAMIC CAPACITOR	CKPUYY103M16
	C302	ELECT. CAPACITOR	CEEA222M35
	C303	ELECT. CAPACITOR	CEAS101M10
	C304	ELECT. CAPACITOR	CEEA470M25
	C307	ELECT. CAPACITOR	CEAS471M35
	C308	ELECT. CAPACITOR	CEAS470M35
	C309	ELECT. CAPACITOR	CEAS101M35
	C311	ELECT. CAPACITOR	CEEA101M16
	C312		ACH1135
	C381	CERAMIC CAPACITOR	CKPUYB101K50
	C382	ELECT. CAPACITOR	CEAS101M10
	C501	CERAMIC CAPACITOR	CKPUYY103M16
	C502,503	CERAMIC CAPACITOR	CCMCH220J50
	C504	CERAMIC CAPACITOR	CKDYX223M25
	C505	CERAMIC CAPACITOR	CKDYX473M25
	C506	CERAMIC CAPACITOR	CKDYX223M25
	C507	ELECT. CAPACITOR	CEAS2R2M50
	C508,509	CERAMIC CAPACITOR	CKCYB332K50
	C510,511	CERAMIC CAPACITOR	CKCYB472K50
	C512	CERAMIC CAPACITOR	CKPUYY103M16
	C513	ELECT. CAPACITOR	CEAS101M10
	C514	CERAMIC CAPACITOR	CKPUYB102K50
	C515	CERAMIC CAPACITOR	CKPUYY103M16
	C516	ELECT. CAPACITOR	CEAS101M10
RESISTORS			
	VR201	VR (10K)	ACP1043
	VR202	VR (10K)	ACP1043
	VR251	VR (47K)	ACP1045
	VR252	VR (4.7K)	ACP1042
	VR501	VR (47K)	ACP1045
	R102	CARBONFILM RESISTOR	RD1/2PM681J
	R242	CARBON FILM RESISTOR	RDR1/6PU473J
	R243	CARBON FILM RESISTOR	RDR1/6PU222J
	R244	CARBON FILM RESISTOR	RDR1/6PU152J
	R245	CARBON FILM RESISTOR	RDR1/6PU392J
	R251	CARBON FILM RESISTOR	RDR1/4PM333J
	R252	CARBON FILM RESISTOR	RDR1/6PU223J
	R253,254	CARBON FILM RESISTOR	RDR1/6PU223J
	R255,256	CARBON FILM RESISTOR	RDR1/6PU333J
	R257,258	CARBON FILM RESISTOR	RDR1/4PM472J
	R259,260	CARBON FILM RESISTOR	RDR1/4PM473J
	R261,262	CARBON FILM RESISTOR	RDR1/6PU472J
	R263,264	CARBON FILM RESISTOR	RDR1/6PU821J
	R265,266	CARBON FILM RESISTOR	RDR1/4PM473J
	R269	CARBON FILM RESISTOR	RDR1/6PU102J
	R271,272	CARBON FILM RESISTOR	RDR1/6PU103J
⚠	R301	FUSLIBLE RESISTOR	RFA1/4PS100J
	R305	CARBONFILM RESISTOR	RD1/2PM471J
		Other Resistors	RD1/8PM□□□J

Mark	No.	Description	Parts No.
OTHERS			
	X121	RESONATOR (7.200MHz)	ASS1005
	X201	RESONATOR (450KHz)	ATF1027
	X501	RESONATOR (4.332MHz)	ASS1061
	X502	RESONATOR (4.00MHz)	ASS1025
	CN101	CONNECTOR(11P)	KPE11
	CN102	CONNECTOR(13P)	KPE13
		AM RF TUNING BLOCK (MW block)	AXX1014
		ANTENNA TERMINAL 2-P	AKA1012
		PIN JACK(2P)	AKB1039
		SCREW	ABA-298
		JACK	AKN1006
		4 SERIAL F.E. MODULE ASSEMBLY	AXQ1004

NOTE:
4 Serial F.E. module assembly has no service parts.

POWER ASSEMBLY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	Q305-308	TRANSISTOR	2SC2878
⚠	D301-306	DIODE	S5566
COILS, FILTERS			
⚠	L351	FILTER	ATF1117
⚠	T351	POWER TRANSFORMER	ATT1195
CAPACITORS			
⚠	C301	CAPACITOR (0.047/AC25V)	ACG-009
	C305	ELECT. CAPACITOR	CEAS221M25
	C306	CERAMIC CAPACITOR	CKDYX473M25
⚠	C351	CAPACITOR (0.01/AC400V)	ACG1002
RESISTORS			
	R307-310	CARBON FILM RESISTOR	RD1/4PM010J
	R311-314	CARBONFILM RESISTOR	RD1/8PM472J

CONTROL ASSEMBLY

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC401	CONTROL MCU	PDG080A
	Q401	TRANSISTOR	XDC143ES
	D401,402	DIODE	1SS252
	D403	ZENER DIODE	RD4.7ESB
	D404-411	DIODE	1SS252
SWITCHES			
	S401-421	SWITCH	ASG1034
COILS, FILTERS			
	L401	AXIAL INDUCTOR	LAU2R2M
CAPACITORS			
	C401	CERAMIC CAPACITOR	CKPUYY103M16
	C402	ELECT. CAPACITOR	CEJA221M6
	C403	ELECT. CAPACITOR	CEJA220M35
	C404	CERAMIC CAPACITOR	CKDYF223Z50
	C405	CERAMIC CAPACITOR	CKPUYB101K50
	C406	ELECT. CAPACITOR	CEJA4R7M35
	C407	CERAMIC CAPACITOR	CKPUYB102K50
	C408-410	CERAMIC CAPACITOR	CKPUYB331K50
	C411-414	CAPACITOR (100P/50V)	ACG1031
	C415	CERAMIC CAPACITOR	CKPUYB101K50
	C416	CERAMIC CAPACITOR	CKPUYF473Z16
RESISTORS			
		All Resistors	RD1/8PM□□□J
OTHERS			
	V401	FL TUBE	AAV1144
	X401	RESONATOR (7.70MHz)	ASS1055

4. ADJUSTMENTS

4.1 FM TUNER ADJUSTMENTS

● Connect as shown in Fig. 4-1.

4.1.1 FM MONO

Step	Adjustment name	FM SG (1 kHz, 75 kHz dev).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	IF sensitivity adjustment	98 MHz	MONO	Low input level	98 MHz	T151	Adjust so that the voltage between TP 203 and GND becomes maximum.
2	T meter adjustment	98 MHz	MONO	60 dB μV	98 MHz	T201	Adjust so that the voltage between TP 201 and TP 202 becomes 0±50 mV.
3	MONO distortion adjustment	98 MHz	MONO	60 dB μV	98 MHz	T202	Adjust so that the distortion becomes minimum.

4.1.2 FM STEREO

Step	Adjustment name	FM SG (1 kHz, 75 kHz dev).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	VCO adjustment	108 MHz	OFF	60 dB μV	108 MHz	VR252	Adjust so that the output at TP 251 becomes 76 kHz±0.5 kHz.
2	Stereo distortion adjustment	89 MHz	L-ONLY	60 dB μV	89 MHz	T151	Minimize the distortion within 1/4 rotation of core.
3	Separation adjustment	89 MHz	R-ONLY	60 dB μV	89 MHz	VR251	Adjust so that the separation R→L becomes maximum.
4			L-ONLY	60 dB μV	89 MHz	VR251	Adjust so that the separation L→R becomes maximum.

Stereo modulation : Main 1 kHz L+R, 68.25 kHz dev. Pilot 19 kHz, 6.75 kHz dev.

4.1.3 FM ETC

Step	Adjustment name	FM SG (1 kHz, 75 kHz dev).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	TUNED indicator adjustment	98 MHz	MONO	12 dB μV ±3 dB	98 MHz	VR201	Adjust so that the indicator lights up.
2	SK level adjustment	88 MHz	RF SG (External)	60 dB μV	88 MHz NORMAL (ATT ON)	VR501	Adjust so that the voltage between TP 501(57 kHz) and GND becomes maximum.

4.2 AM TUNER ADJUSTMENTS

● Connect as shown in Fig. 4-2.

Step	Adjustment name	AM SG (400 Hz, 30% modulation).			FL display, IF BAND etc.	Location	Adjustment
		Frequency	Modulation	Level			
1	Tracking adjustment *1	603 kHz	OFF	Low input level	603 kHz	ANT coil of MW block (AXX 1014)	Adjust so that the voltage between TP 203 and GND becomes maximum.
		1395 kHz	OFF	Low input level	1395 kHz	TC101	
2	IFT adjustment *1	603 kHz	OFF	Low input level	603 kHz	F 201	
3	TUNED indicator adjustment	1008 kHz	ON	55dBμV/m ±10 dB	1008 kHz	VR202	Adjust so that the indicator lights up.

*1 : Adjustment only for HEWZI.

4. REGLAGES

4.1 REGLAGE DU TUNER FM

- Raccorder comme illustré a la Fig. 4-1.

4.1.1 FM MONO

Ordre	Items de réglage	FM SG (1 kHz, 75 kHz dev).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Réglage de sensibilité IF	98 MHz	MONO	Bas niveau d'entrée	98 MHz	T151	Régler afin que la tension entre TP203 et la masse soit maximale.
2	Réglage de compteur T	98 MHz	MONO	60 dB μV	98 MHz	T201	Régler afin que la tension entre TP201 et TP202 soit de 0 ± 50 mV.
3	Reglage de la distorsion MONO	98 MHz	MONO	60 dB μV	98 MHz	T202	Régler pour que la distorsion soit réduite au minimum.

4.1.2 FM STEREO

Ordre	Items de réglage	FM SG (1 kHz, 75 kHz dev).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Réglage VCO	108 MHz	OFF	60 dB μV	108 MHz	VR252	Régler afin que la sortie à TP251 soit de 76 kHz ± 0,5 kHz.
2	Reglage de la distorsion STEREO	89 MHz	L-ONLY	60 dB μV	89 MHz	T151	Diminue la distorsion d'un quart de rotation de tore.
3	Réglage de séparation	89 MHz	R-ONLY	60 dB μV	89 MHz	VR251	Régler pour obtenir une séparation D→G maximale.
4			L-ONLY	60 dB μV	89 MHz	VR251	Régler pour obtenir une séparation G→D maximale.

Modulation Stéréo : Principale 1 kHz L+R, 68,25 kHz dev. Pilote 19 kHz, 6,75 kHz dev.

4.1.3 FM ETC

Ordre	Items de réglage	FM SG (1 kHz, 75 kHz dev).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Indicateurs de TUNED niveau d'eclairement	98 MHz	MONO	12 dB μV ±3 dB	98 MHz	VR201	Effectue l'ajustement de manière à allumer le témoin.
2	Réglage de niveau SK	88 MHz	RF SG (Extarne)	60 dB μV	88 MHz NORMAL (ATT ON)	VR501	Régler afin que la tension entre TP501 (57 kHz) et la masse soit maximale.

4.2 REGLAGE DU TUNER AM

- Raccorder comme illustré a la Fig. 4-2.

Ordre	Items de réglage	AM SG (400 Hz, 30% modulation).			Affichage de fréquence de réception	Lieu	Réglage
		Fréquence	Modulation	Niveau			
1	Réglage d'alignement *1	603 kHz	OFF	Bas niveau d'entrée	603 kHz	Bobine MW ANT (AXX1014)	Régler afin que la tension entre TP203 et la masse soit maximale.
		1395 kHz	OFF	Bas niveau d'entrée	1395 kHz	TC101	
2	Réglage IFT *1	603 kHz	OFF	Bas niveau d'entrée	603 kHz	F 201	
3	Indicateurs de TUNED niveau d'eclairement	1008 kHz	ON	55dBμV/m ±10 dB	1008 kHz	VR202	Effectue l'ajustement de manière à allumer le témoin.

*1 : Réglage pour *HEWZI* seulement

F-301RDS

4. AJUSTES

4.1 AJUSTE DEL SINTONIZADOR DE FM

- Conecte como lo indica la Fig. 4-1.

4.1.1 FM MONO

Paso N°	Items de ajuste	FM SG (1 kHz, 75 kHz dev).			Indicador de frecuencia de recepción	Lugar	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste de sensitividad de FI	98 MHz	MONO	Nivel de entrada bajo	98 MHz	T151	Ajuste de modo de obtener la máxima tensión entre TP203 y masa.
2	Ajuste del medidor T	98 MHz	MONO	60 dB μV	98 MHz	T201	Ajste de modo que la tensión entre TP201 y TP202 sea 0±50 mV.
3	Ajuste de distorsión MONO	98 MHz	MONO	60 dB μV	98 MHz	T202	Ajuste de forma que la distorsión se reduzca al mínimo.

4.1.2 FM ESTEREO

Paso N°	Items de ajuste	FM SG (1 kHz, 75 kHz dev).			Indicador de frecuencia de recepción	Lugar	Ajuste
		Frecuencia	Modulación	Nivel			
1	Ajuste de VCO	108 MHz	OFF	60 dB μV	108 MHz	VR252	Ajuste de modo de que la salida por TP251 sea 76 kHz±0,5 kHz.
2	Ajuste de distorsión STEREO	89 MHz	L-ONLY	60 dB μV	89 MHz	T151	Reduzca al mínimo la distorsión dentro de 1/4 de rotación del núcleo.
3	Ajuste de separación	89 MHz	R-ONLY	60 dB μV	89 MHz	VR251	Ajuste de modo de obtener la máxima separación izq.→der.
4			L-ONLY	60 dB μV	89 MHz	VR251	Ajuste de modo de obtener la máxima separación der.→izq.

Modulación estéreo : Principal 1 kHz L+R, 68,25 kHz dev. Pilote 19 kHz, 6,75 kHz dev.

4.1.3 FM ETC

Paso N°	Items de ajuste	FM SG (1 kHz, 75 kHz dev).			Indicador de frecuencia de recepción	Lugar	Ajuste
		Frecuencia	Modulación	Nivel			
1	Nivel de iluminación de TUNED	98 MHz	MONO	12 dB μV ±3 dB	98 MHz	VR201	Ajuste de forma que se encienda el indicador.
2	Ajuste de nivel SK	88 MHz	RF SG (Extarno)	60 dB μV	88 MHz NORMAL (ATT ON)	VR501	Ajuste de modo de obtener la máxima tensión entre TP501(57 kHz) y masa.

4.2 AJUSTE DEL SINTONIZADOR DE AM

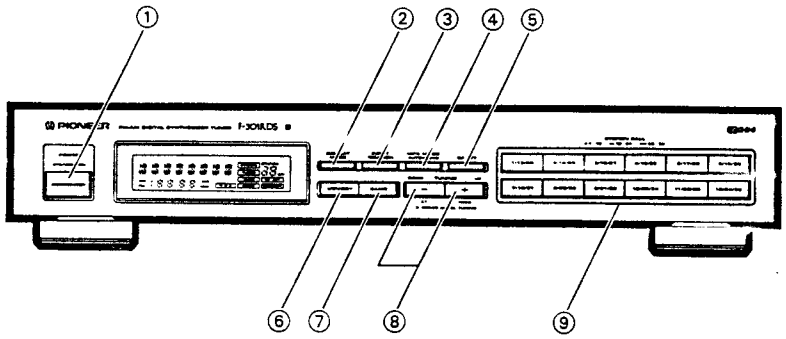
- Conecte como lo indica la Fig. 4-2.

Paso N°	Items de ajuste	AM SG (400 Hz, 30% modulación).			Indicador de frecuencia de recepción	Lugar	Réglage
		Frecuencia	Modulación	Nivel			
1	Ajuste de seguimiento *1	603 kHz	OFF	Nivel de entrada bajo	603 kHz	Bobina MW ANT (AXX1014)	Ajuste de modo de obtener la máxima tensión entre TP203 y masa.
		1395 kHz	OFF	Nivel de entrada bajo	1395 kHz	TC101	
2	Ajuste de IFT *1	603 kHz	OFF	Nivel de entrada bajo	603 kHz	F 201	
3	Nivel de iluminación de TUNED	1008 kHz	ON	55dBμV/m ±10 dB	1008 kHz	VR202	Ajuste de forma que se encienda el indicador.

*1 : Ajuste solo HEWZI

6. FRONT PANEL FACILITIES

FRONT PANEL FACILITIES



① POWER (STANDBY/ON) switch

ON ..... When set to ON position, power is supplied and the unit becomes operational.

STANDBY.... When set to STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

NOTE:

- *The memory will be backed up so long as the power cord is not unplugged.*
- *If the power cord is unplugged, the memory will be retained for several days.*

② DISPLAY MODE button

Use only during FM reception.
Use this to switch between display modes.
Each time you press it, the display changes as follows.

RT mode
Displays PS → RT → PTY in sequence.
(Skipped when there is no PTY data.) → Returns to PS.
↓
PS mode
PS display
↓
PTY mode
PTY display
↓
CT/FREQ selection mode
While "CT/FREQ" is displayed, you can select clock time/frequency indicator display with the UP (FREQ)/DOWN (CT) buttons.

③ INPUT/SEARCH button

When receiving an AM broadcast, or when in the FM RT, PS modes:
Press the button, "INPUT" is displayed, and the mode switches to manual station name input.

When in the PTY mode:
Press the button, "SEARCH" is displayed, and the mode switches to program type search.

④ MPX (multiplex) MODE AUTO/MONO button

Mode changes as follows each time this button is pressed.

AUTO → MONO →

This button does not affect AM reception.

AUTO:
Depending on the broadcast station, STEREO or MONO is automatically selected.

AUTO indicator lights up.

NOTE:
When the signal level is too weak for reception, sound output is automatically muted.

MONO:
To receive stereo broadcasts in monaural.

MONO indicator lights up.

NOTE:
This button's status is preset for each station in station memory.

⑤ RF ATT button

Set this button to ON when receiving strong FM signals (nearby stations) to reduce sound distortion (RF ATT indicator lights).
Normally, this button should be set to OFF.
This button does not affect AM reception.

NOTE:
This button's status is preset for each station in station memory.

⑥ MEMORY button

Use to preset stations.
Also used for FM broadcast manual station name character selection and program type search.

⑦ BAND selector button

Each time you press the button, the band changes as follows.

FM → AM →

⑧ UP (FREQ)/DOWN (CT) buttons

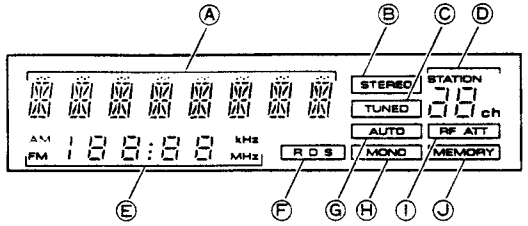
When in the RT, PS, and PTY modes:
Use to receive a broadcast. Press the buttons to change the frequency display. (3-Speed Accel Tuning).
In the Manual Station Name input mode, and PTY Search mode, use to select characters and program type.

When in the CT/FREQ modes:
Selects clock time/frequency indicator display. While "CT/FREQ" is displayed, press the UP (FREQ) button for frequency display, and press the DOWN (CT) button for CT data display. (If no CT data is transmitted, display switches automatically to frequency indications.)
After selection, switching to the RT mode is automatic.

⑨ STATION CALL buttons

Use these buttons to preset stations and to receive already preset stations.

OPERATING DISPLAY



Ⓐ RDS data (RT/PS/PTY) indicator

During FM broadcast reception, each time you press the DISPLAY MODE button, the display changes as follows.

RT mode: The following data is displayed in sequence.

PS (Program Service Name) data or station name data of stations stored in the manual memory.

RT (Radio Text) data scroll display.
A message transmitted from the broadcast station using a maximum of 64 characters.

PTY (Program Type) data.
Skipped when no data is transmitted.

PS mode: Broadcast station name (PS: Program Service Name) is displayed during reception.

ABC RI

When storing a station in manual station name memory, manual station name display takes priority.

PTY mode: Broadcast PTY (Program Type) is displayed during reception.

MUSIC

Ⓑ STEREO indicator

Lights up when a stereo broadcast is received.
(The indicator does not light when the MPX MODE AUTO/MONO button is set to MONO.)

Ⓒ TUNED indicator

Lights when a broadcast is received.

Ⓓ STATION indicator

When STATION CALL buttons are pressed, it will show the corresponding channel number.

Ⓔ Clock time/frequency indicator

CT (Clock Time) data, and band and frequency data is displayed.

Ⓕ RDS indicator

Lights when an RDS broadcasts is received.

Ⓖ AUTO indicator

Stays lit while MPX MODE AUTO/MONO button is set to AUTO.

Ⓗ MONO indicator

Stays lit while MPX MODE AUTO/MONO button is set to MONO.

Ⓘ RF ATT indicator

Stays lit while RF ATT button is on.

Ⓙ MEMORY indicator

When presetting a station, press the MEMORY button and it lights for a few seconds.

7. SPECIFICATIONS

FM Tuner Section

Frequency range ..... 87.5 MHz to 108 MHz
Usable Sensitivity ..... Mono: 12.7 dBf, IHF (1.2 μV/75 Ω)
50 dB Quieting Sensitivity
NORMAL ..... Mono: 18.0 dBf, IHF (2.2 μV/75 Ω)
Stereo: 38.3 dBf, IHF (22.6 μV/75 Ω)
Sensitivity (DIN)
NORMAL ..... Mono: 1.0 μV/75 Ω
Stereo: 35 μV/75 Ω
Signal-to-Noise Ratio ..... Mono: 78 dB (at 80 dBf)
Stereo: 74 dB (at 80 dBf)
Signal-to-Noise Ratio (DIN) ..... Mono: 73 dB
Stereo: 60 dB
Distortion (at 80 dBf) ..... Mono: 0.15 % (1 kHz)
Stereo: 0.2 % (1 kHz)
Alternate Channel Selectivity ..... 70 dB (300 kHz)
Stereo Separation ..... 40 dB (1 kHz)
Frequency Response ..... ±1 dB (30 Hz to 15 kHz)
Image Response Ratio ..... 80 dB
IF Response Ratio ..... 90 dB
Muting Threshold ..... 23.2 dBf (4.0 μV/75 Ω)
Antenna Input ..... 75 Ω unbalanced

AM Tuner Section

Frequency range ..... 531 kHz to 1,602 kHz (Step 9 kHz)
Sensitivity (IHF, Loop antenna) ..... 350 μV/m
Selectivity ..... 40 dB
Signal-to-Noise Ratio ..... 50 dB
Image Response Ratio ..... 40 dB
IF Response Ratio ..... 50 dB
Antenna ..... Loop Antenna

Audio Section

Output (Level/Impedance)
FM (100 % MOD) ..... 650 mV/0.9 kΩ
AM (30 % MOD) ..... 150 mV/0.9 kΩ

Miscellaneous

Power Requirements ..... a.c. 240 Volts –, 50/60 Hz
Power Consumption ..... 15 W
Dimensions ..... 420 (W) x 75 (H) x 274 (D) mm
Weight (without package) ..... 2.6 kg

Furnished Parts

FM T-type Antenna 1
AM Loop Antenna 1
Connecting Cord with Pin Plugs 1
Operating Instructions 1
Control cord 1

NOTE:
Specifications and design are subject to possible modification without notice due to improvements.